



NRC NEWS

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**Statement of Commissioner Jeffrey S. Merrifield
at the February 24, 2005, Briefing of the
U.S. Nuclear Regulatory Commission on
Nuclear Fuel Performance**

Mr. Chairman, this is a meeting that I have sought for some time, and despite the snowstorm today, one that I am anxious to proceed through.

Since joining the Commission in 1998, I have taken the opportunity to visit all 103 operating reactors in the United States, as well as all of the fuel cycle facilities. As I concluded that effort, I began to notice that fuel reliability was becoming a more and more frequent topic of discussion.

According to information I received from our licensees, we recently had between 1/4 and 1/3 of the plants operating with failed fuel, a trend that is dramatically different than the significant improvement in fuel reliability we had seen in the late 1990's. Indeed, the more recent increase in fuel failures approached levels that we have not seen since the early 1990s.

Now, just so there is no misunderstanding of my concerns in this area, I am not here to suggest that there is a significant increase in the risk of a severe accident resulting from this trend. Indeed, data from our Office of Research validates that there is no significant change in the core damage frequency from this trend. Further, as some will point out, when compared with the total number of fuel pins in the total inventory, we are not talking about big numbers.

Nonetheless, this is a trend we can neither ignore nor tolerate. The fact is that damaged fuel creates significant and frequently long-lived operational challenges to the plants and the individuals who work there. Greater difficulty in managing worker dose, limitations on the allowable time workers and inspectors can enter high-dose areas, higher costs and complexity of future decommissioning activities, and greater challenges in managing spent fuel may result from this problem. In addition, increasing complications in material control and accountability are an issue we all face.

The loss of public confidence that results when nuclear plants operate with leaking fuel, or worse yet in this post 9/11 world, when licensees cannot account for some failed fuel elements that are supposed to be stored in their spent fuel pools, should be a concern to both the NRC and the industry.

Today, a vast majority of the operating fleet has reconstituted fuel in its spent fuel pools where failed pins have been removed and new pins installed so the fuel bundles can be fully utilized. Unfortunately, this has led to the difficulties we have recently faced at Millstone, Vermont Yankee and Humbolt Bay. This is a history that we will be living with for some time.

From a regulatory perspective, fuel cladding is the first of the three primary barriers to the release of fission products. Erosion of this first barrier weakens the foundation of our defense-in-depth strategy. Now while some, including the NRC staff, will focus on the fact that the current level of fuel failures does not exceed our technical specifications, the fact is that while a utility may not be in violation of an NRC requirement, using the NRC technical specifications as an operating goal neither makes good business sense, nor is it consistent with the goal of excellence established by the Institute for Nuclear Power Operations (INPO).

When one begins to look at what is the reason for the recent trend, there are a variety of potential causes. The failure of licensees to keep on top of foreign material exclusion, new designs in reactor fuel, changes in cladding materials, higher fuel burnup, power uprates, and longer operating cycles are among the potential causes that come to mind. What is clear is that there is no single cause, nor is this issue isolated to any one licensee or fuel vendor.

To its credit, the Nuclear Energy Institute, which includes both the users and vendors of the fuel, has recognized that this is an important challenge and has committed significant resources to understanding the potential solutions. With research monies directed toward the Electric Power Research Institute (EPRI), it is clear that NEI is putting its money where its mouth is. For our part, I think the NRC has to closely monitor this effort as well as ensure that our staff understands these trends and is providing the Commission with timely and useful options for any policy decisions that may arise.

Today Joe Sheppard and our other panelists will explain how they intend to meet their self-imposed goal of "Zero Defects." I think this is a laudable goal, and I look forward to understanding how they intend to get there.